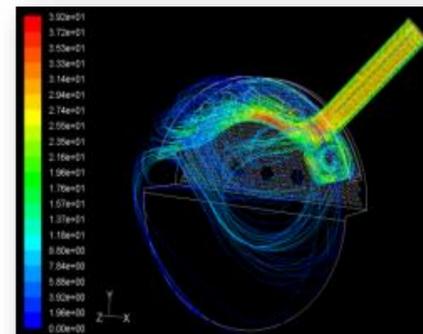
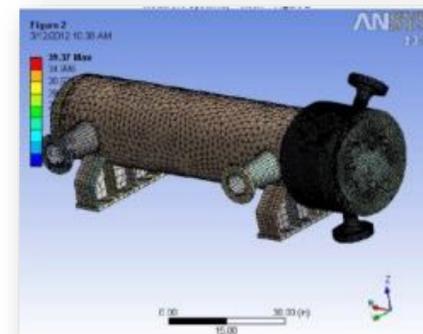
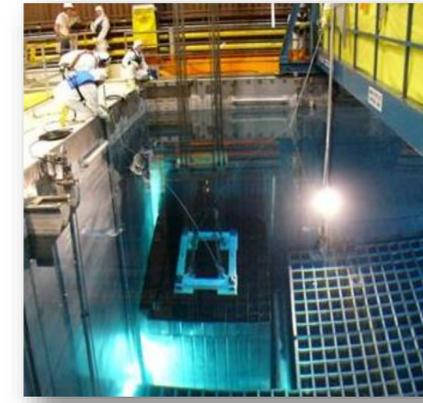


Storage and Aging Management of Spent Nuclear Fuel at VY



By:
Joy Russell
SVP, Chief Commercial &
Communications Officer

Kimberly Manzione
Director of Licensing

May 23, 2022

Topics

- About Holtec International
- History of Dry Storage at Vermont Yankee
- Nuclear Fuel and How it is Stored
- Holtec's HI-STORM 100 Systems Protection of Public Health & Safety
- HI-STORE
- Aging Management

About Holtec International

- Technical Innovation
- Protection of the Environment
- Financially strong with self-financed R&D
- Impeccable Safety Record
- Ingrained Nuclear Safety Culture
- Robust Quality Assurance Program

**Committed to the
Nuclear Industry**

A vertically integrated turnkey supplier of goods and services to the power generation industry established in 1986



Holtec International: Corporate Re-introduction

- Established in 1986
- Robust safety program
- Strong and effective quality assurance program
- Impeccable on-time delivery record
- Excellent financial strength
 - ✓ No history of long-term debt
 - ✓ Financially strong with self-financed Research & Development
 - ✓ Equipment delivered: 4.0 Billion USD
 - ✓ Orders booked for future deliveries: 5.0 Billion USD
- Business mix:
 - ✓ 90% Nuclear power & nuclear waste
 - ✓ 5% Fossil power - combined cycle
 - ✓ 5% Renewables - solar, wind, etc.



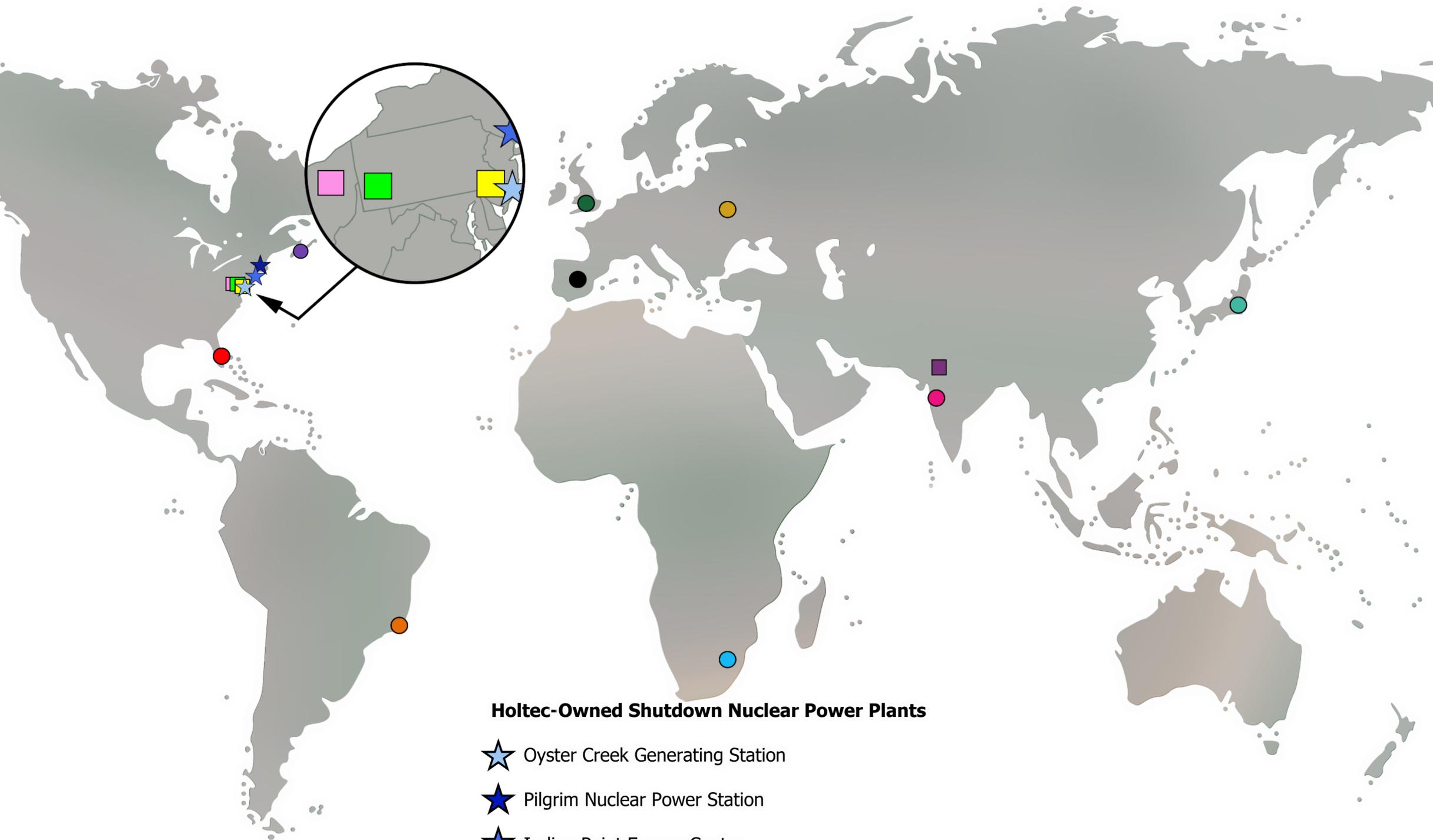
Krishna P. Singh Technology Campus
Located in Camden, New Jersey, U.S.A

*Holtec is a Vertically-Integrated, Innovative
Technology Leader with Unique Approaches to
Design & Manufacturing*

Holtec Worldwide



- Holtec International Corporate Headquarters, Jupiter, Florida
- Krishna P. Singh Technology Campus (Corporate Technology Center, Advanced Manufacturing Division), Camden, New Jersey
- Holtec Manufacturing Division, Pittsburgh, Pennsylvania
- Orrvilon Manufacturing Center, Orville, Ohio
- Holtec Asia Precision Fabrication Systems, Dahej, India
- Holtec Asia, Pune, India
- Holtec Britain Limited, Sizewell B Power Station, Suffolk, United Kingdom
- Holtec Ukraine, Kiev, Ukraine
- South Africa Branch Office, South Africa
- Holtec Brasil, Rio de Janeiro, Brazil
- Holtec Europe, Madrid, Spain
- Holtec Japan, Tokyo, Japan
- Holtec Canada, Nova Scotia, Canada

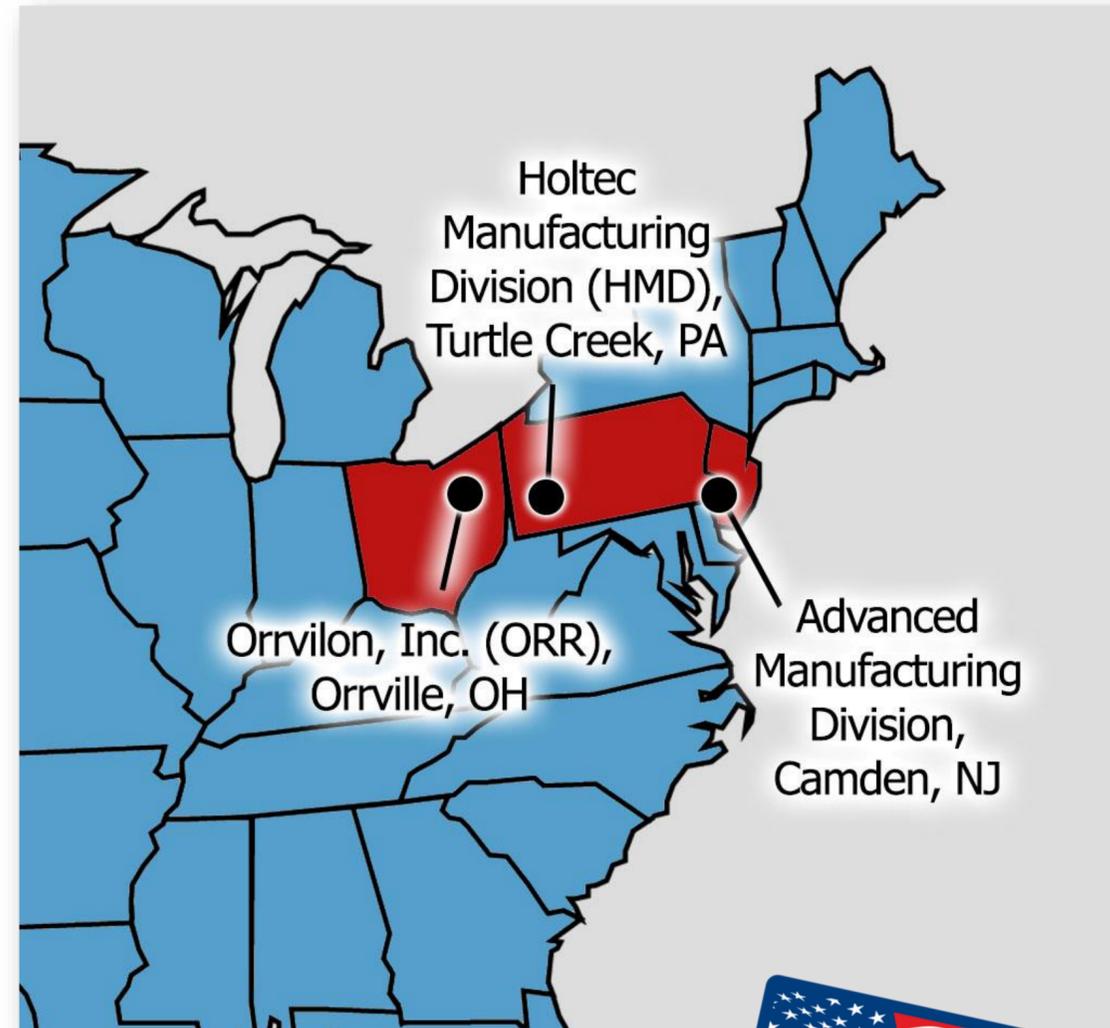


- Holtec-Owned Shutdown Nuclear Power Plants**
- ★ Oyster Creek Generating Station
 - ★ Pilgrim Nuclear Power Station
 - ★ Indian Point Energy Center

Holtec's Manufacturing Capabilities

Three Major U.S. Manufacturing Plants

- Holtec Manufacturing Division (HMD)
 - Turtle Creek, PA
- Orrvilon, Inc. (ORR)
 - Orrville, Ohio
- Advanced Manufacturing Division (AMD)
 - Camden, NJ
- Over 1M ft² of Total Shop Space

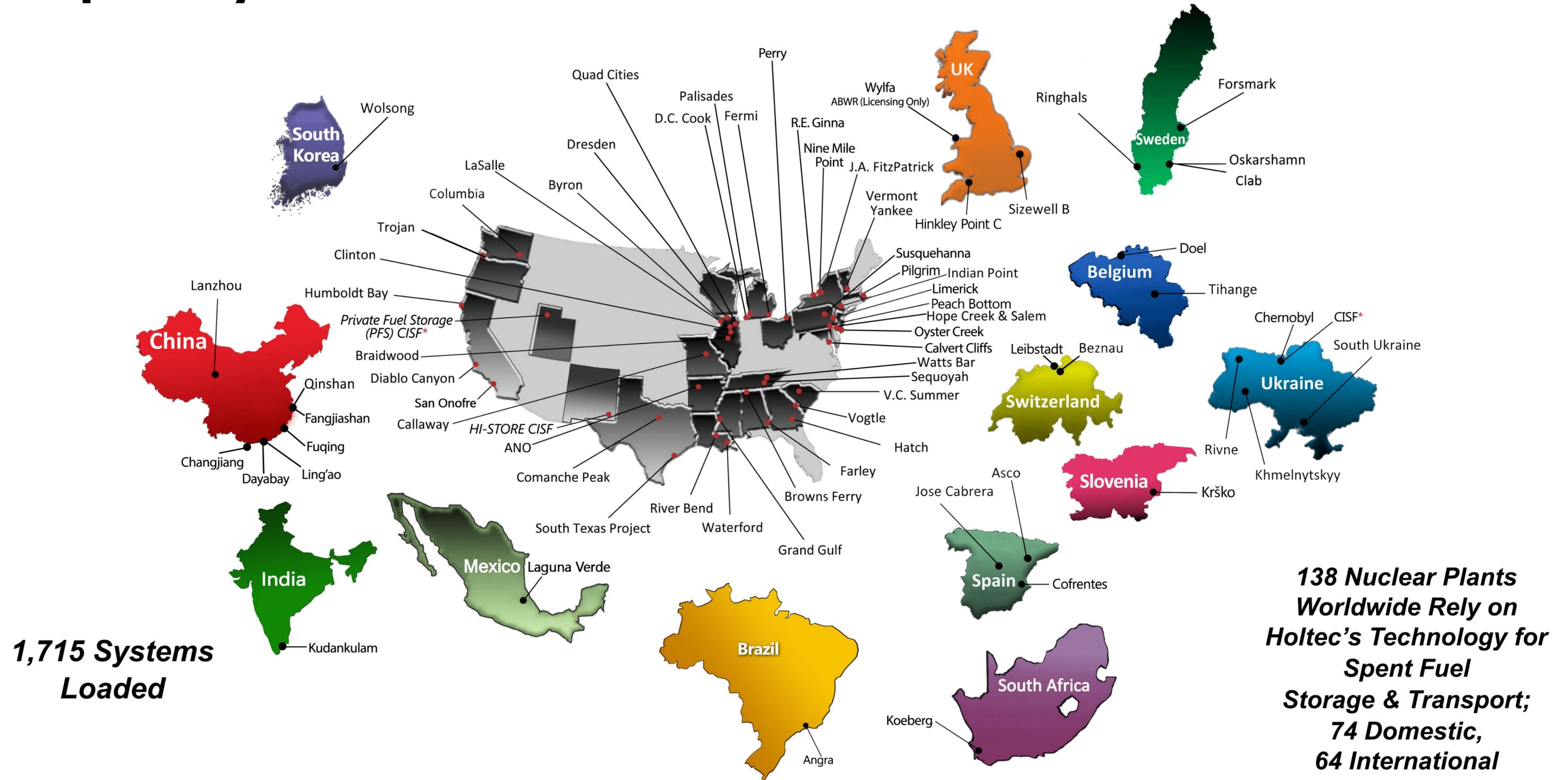


Core Business Activities

- Safe and Secure Used Fuel Storage and Transport Technologies
- Spent Fuel Transfer at Operating & D&D sites
- Decommissioning of Retired Nuclear Plants
- Consolidated Interim Storage
- SMR-160: Holtec's Small Modular Reactor

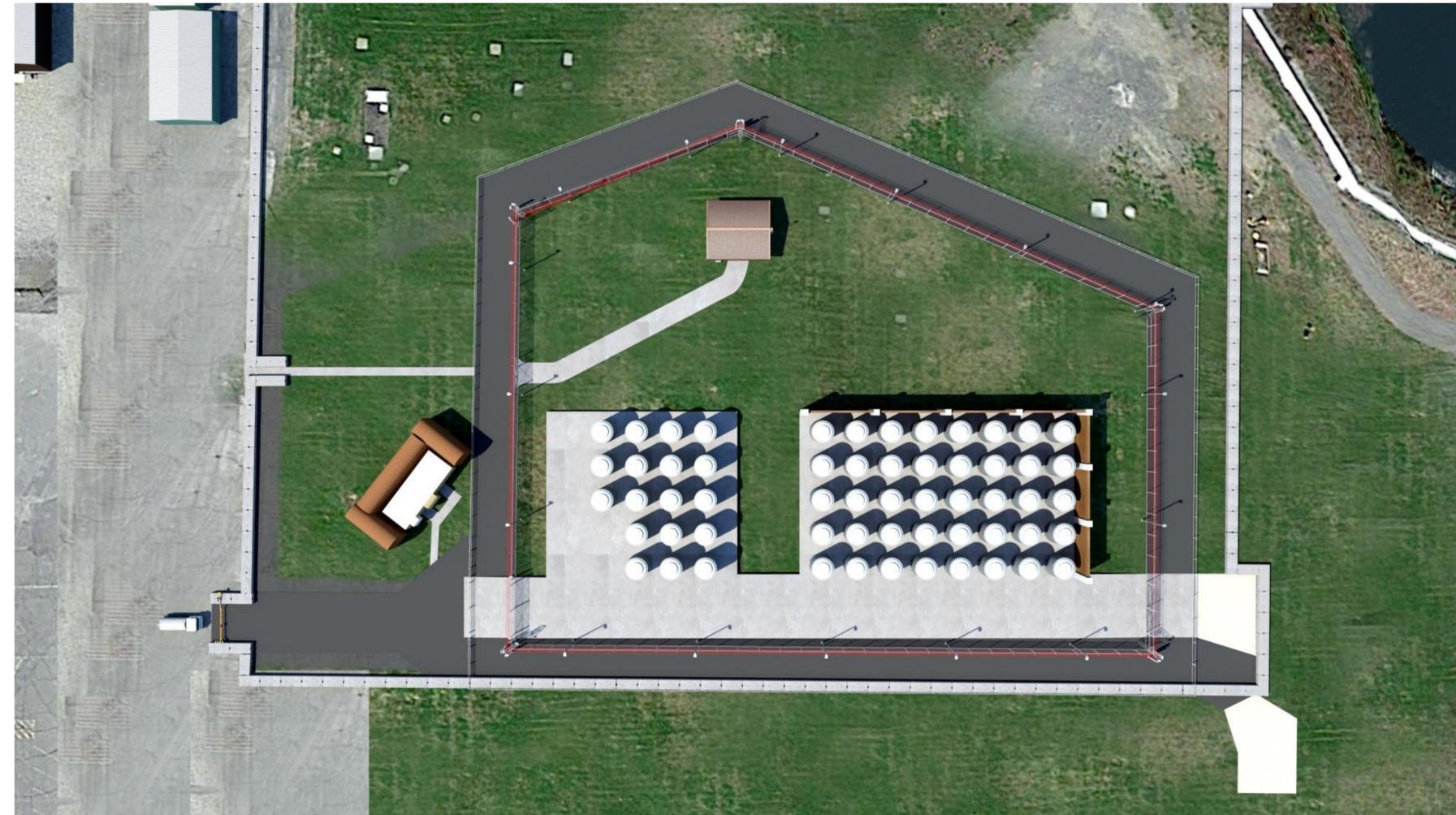


Worldwide Acceptance of Holtec's Dry Storage and Transport Systems



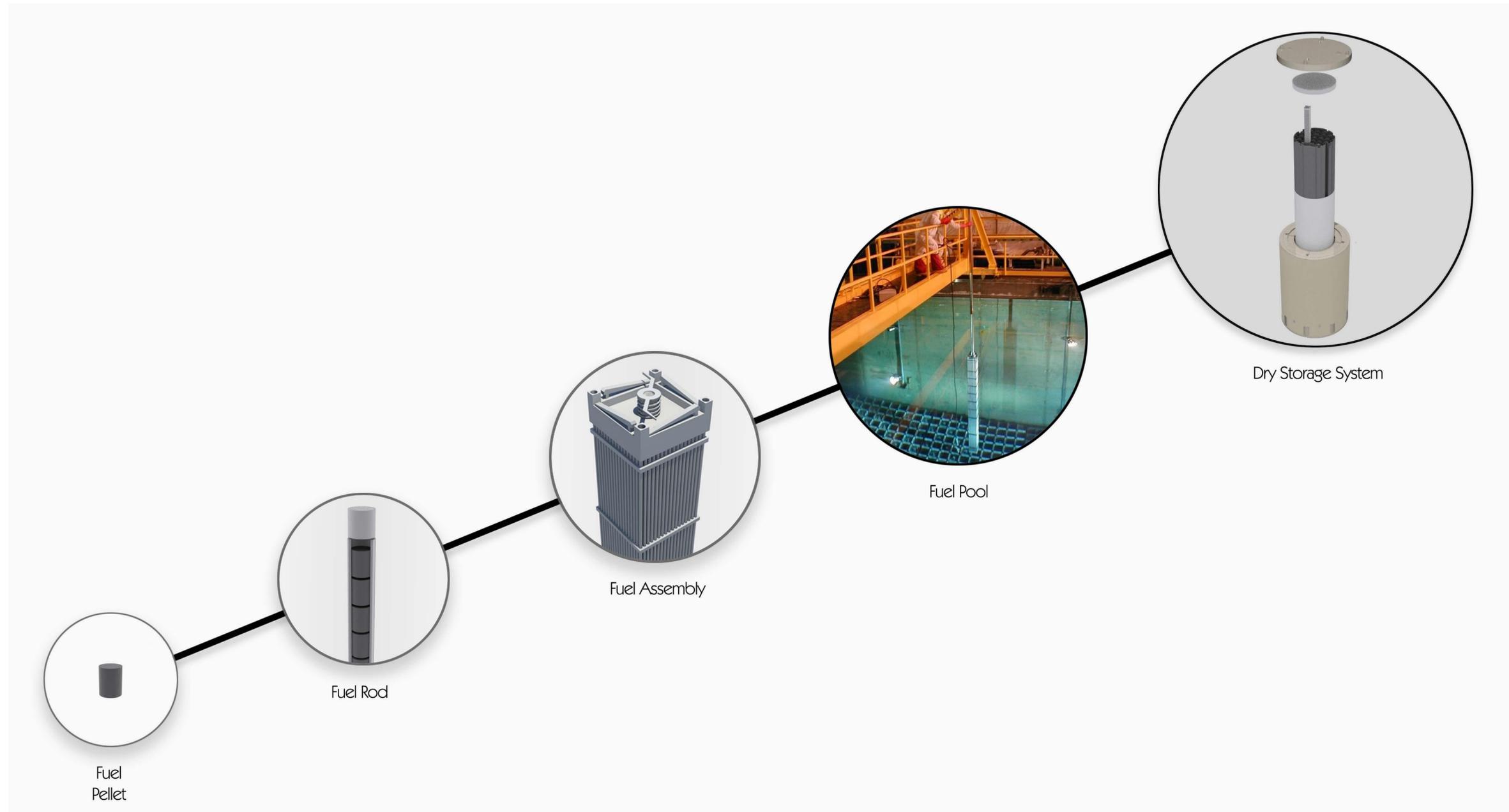
History of Dry Storage at VY

- **2008 - 2010:** Vermont Yankee loaded 13 HI-STORM 100 Casks with MPC-68s
- **2016 – 2018:** Loaded 45 additional HI-STORM 100 Casks with MPC-68M
- HI-STORM 100 systems were designed, manufactured, and installed by Holtec

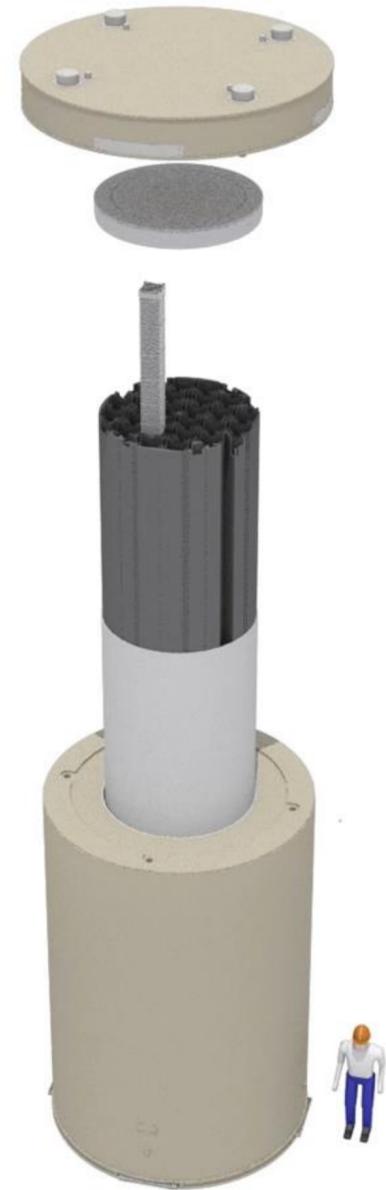


ISFSI at VY

Nuclear Fuel & How it is Stored



Technology Overview



HI-STORM 100 System

Protection of Public Health & Safety

- The HI-STORM System is the most robust system in the industry
 - ✔ The overpack consists of inner and outer steel shells where the space between is filled with concrete
 - ✔ The overpack provides physical protection & radiation shielding
- External steel structure (no exposed concrete) ensures that the cask will not degrade under extreme environmental conditions
- No Rebar
 - ✔ So Easy to assemble
 - ✔ No cracking due to thermal expansion
 - ✔ No radiation streaming pathways
- Minimal maintenance
- Passive heat removal (natural convection)
- Requires no monitoring systems



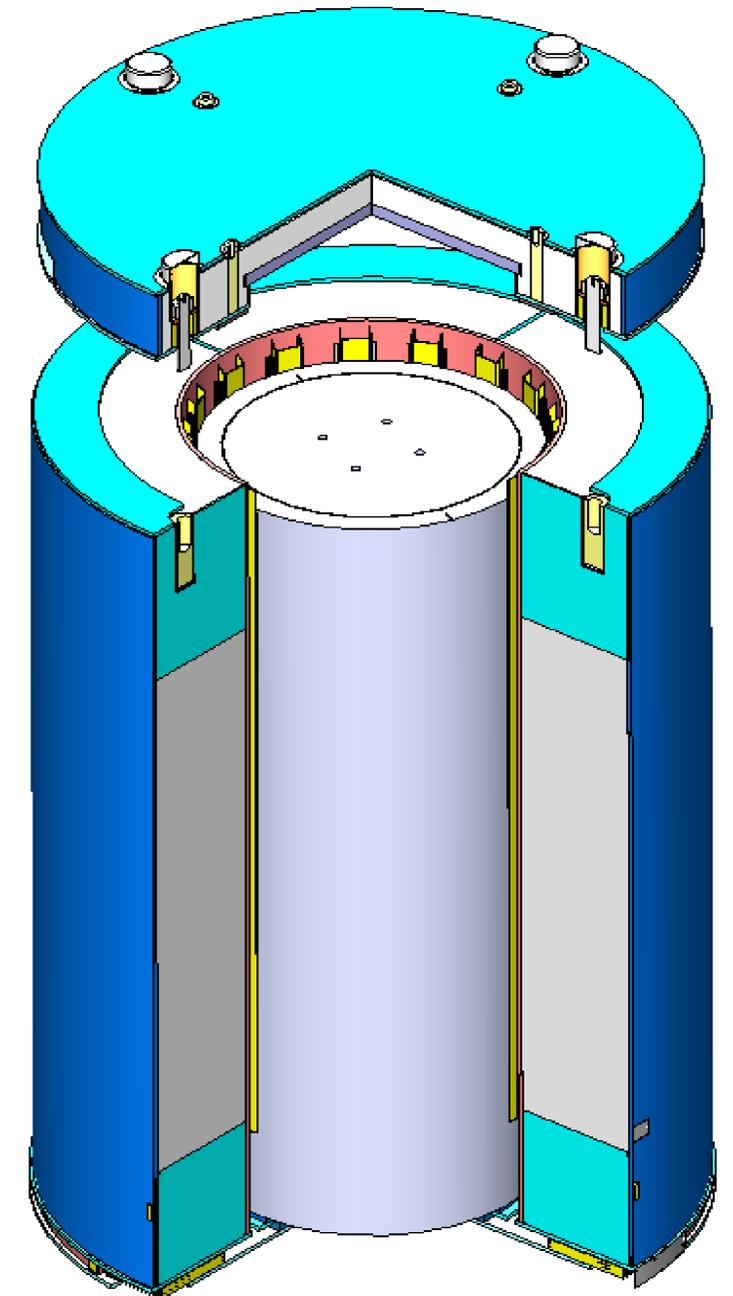
**Side View of HI-STORM Overpacks
being prepared for Transport**



Concrete Poured at Plant Site

Protection of Public Health & Safety

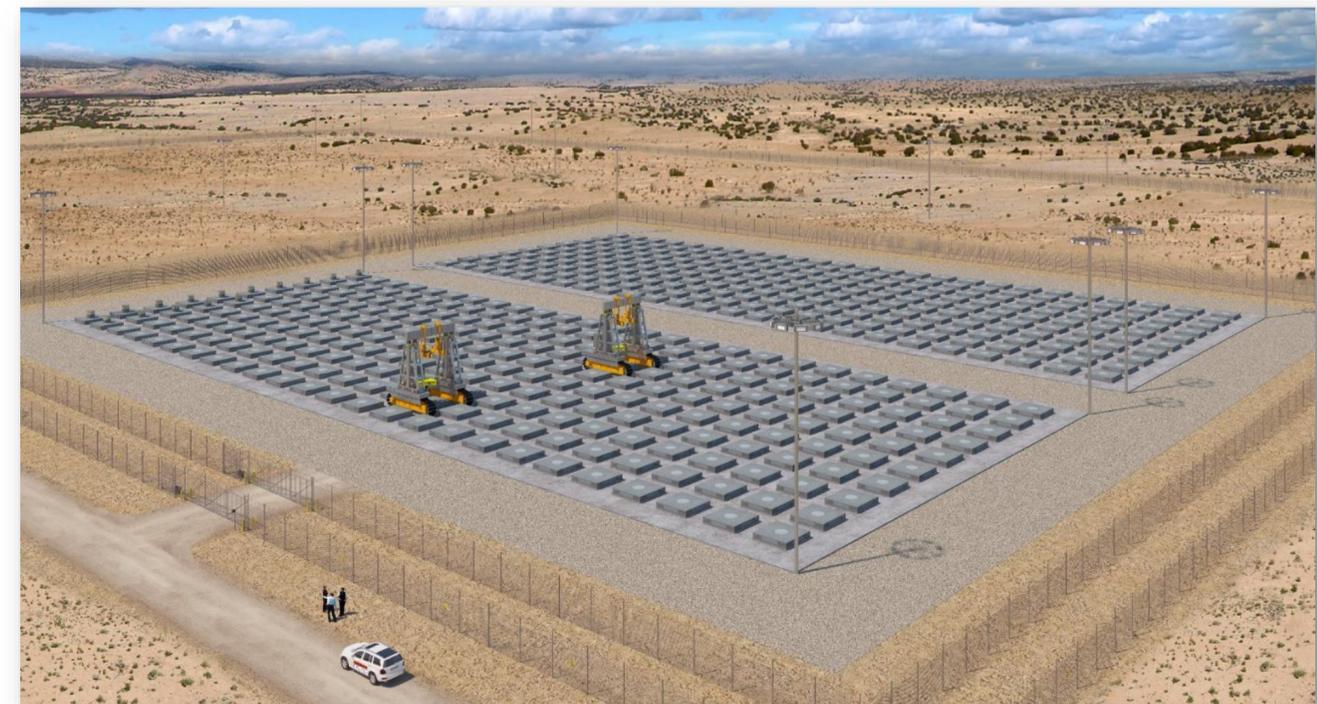
- MPC: Multipurpose Canister – MPC-68 or MPC-68M
 - ✓ Fully-welded, stainless steel, cylindrical vessel that permanently encloses the spent fuel assemblies for storage and transport
 - ✓ The canister is licensed for storage and transport using specific overpacks during storage, onsite transfer, and offsite transport
 - ✓ Designed and manufactured to the highest levels of nuclear safety standards
- The *all-welded* MPC boundary provides an impregnable barrier against radioactivity release to the environment
- No loaded canister of Holtec's (or any other) has ever leaked in long term storage



**An MPC stored inside the
HI-STORM Overpack**

HI-STORE Consolidated Interim Storage Facility

- Invited by the Eddy Lea Energy Alliance (ELEA) to design and build an underground Consolidated Interim Storage Facility in New Mexico
- Universal solution for the Nation's SNF & HLW
- Has strong local support in New Mexico
- Stores the loaded canisters in a subterranean configuration: HI-STORM UMAX System
- Following NRC approval (4Q2022) and funding, HI-STORE could be constructed as soon as 2024



Aging Management

- HI-STORM 100 System Certificate of Compliance was initially issued with a 20 year license life
- Prior to expiration, Holtec submitted a request for the NRC to renew the CoC for an additional 40 years
- Renewal includes two aspects
 - ✓ Analyses to demonstrate components will maintain safety function for 60 years (TLAA)
 - ✓ On-going programs to ensure components are within compliance (AMP)



Aging Management

- For the HI-STORM 100 system these Aging Management Programs (AMP) include:
 - ✔ Annual inspections of the exterior of the overpack for any signs of degradation
 - ✔ ASME VT-3 level visual inspection of at least one canister and interior of the overpack every 5 years using camera
 - ✔ Annual inspections of transfer cask / lifting equipment while in use, and pre-use inspection for sites that are no longer actively loading
 - ✔ Monitor the on-going DOE / EPRI high burnup fuel research for cladding properties
- NRC has reviewed and is preparing to publish approval, will also be inspecting programs on-site

Questions



Thank You



Krishna P. Singh Technology Campus
1 Holtec Boulevard
Camden, NJ 08104

Tel: (856) 797-0900
www.holtec.com